

# Additional surveys of Nahan's Francolin *Francolinus nahanii* in the tropical rainforests of Uganda

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Une vue générale du *Francolinus nahanii* a été faite aux forêts de Bugoma, Kibale et Mabira en Février–Mai 1998 et depuis six semaines en Aout–Octobre 1998 dans la forêt de Mabira. La réécoute de l'enregistrement des sons formait en général la principale méthode. Des réponses positives ont été obtenues dans la forêt de Mabira et Bugoma, mais pas pour la forêt de Kibale. Plus de 30 différents sites repartis dans les différents types de forêts des trois aires étudiées ont été visités. La taille des groupes sont rangés entre 2–5 individus. Les espèces sont chassées par les communautés locales autour de la forêt. Davantages de recherches; pour la préservation de la situation, des exigences écologiques et le contrôle de l'impact humain, et autre biologique et socialculturel données du *Francolinus nahanii* ont été fortement recommandés.



**N**ahan's Francolin *Francolinus nahanii* is known from five forests in Uganda, but, despite recent contributions eg by Dranzoa *et al*<sup>2</sup> and Plumtre<sup>3</sup>, very little is known of its basic ecology and conservation status. Efforts to obtain additional data on the species commenced in 1996 (see Dranzoa *et al*<sup>2</sup>). The present survey continued our assessment of the response of the species to call playback, which will hopefully prove to be an adequate census method for longer term monitoring and ecological studies, and sought to assess the species' current status in Bugoma, Mabira and Kibale forests.

## Study areas

Bugoma, Kibale and Mabira forests are all part of the remnant lowland tropical rainforests in Uganda, and



Top right & left: Nahan's Francolin *Francolinus nahanii* (Christine Dranzoa)

Bottom: Nahan's Francolin *Francolinus nahanii* nest and eggs, Budongo, 27 October 1997 (Eric Saude)

are surrounded by agricultural settlements, industrial development and urban areas.

Bugoma is a fragmented forest covering 401 km<sup>2</sup> and with an altitudinal range of 990–1,300 m. Approximately half of the forested area is dominated by *Cynometra alexandri*, one third is mixed forest and the remainder colonising forest<sup>1</sup>. Major activities are logging for timber, hunting and collection of non-timber products.

Kibale Forest National Park covers 560 km<sup>2</sup> along an altitudinal range of 1,110–1,590 m and is one of the best-known forests in Uganda. The vegetation is classified as mid-altitude, moist evergreen forest. *Parinari* spp. are the dominant canopy trees. Logging for timber occurred in the early 1950s–1980s. Some illegal logging still occurs but at reduced levels. The area was declared a National Park in 1993. Areas surveyed included: undisturbed mature, mixed primary forest in the northern part of the park, around the biological field station popularly known as K30 red and K30 blue, Kanyancu (a tourist centre) and Ngogo (a research site); and a fourth site, consisting of secondary forest, which was logged over 30 years ago (K15).

Mabira Forest Reserve covers 320 km<sup>2</sup> and is 58 km west of Kampala by the road to Jinja. Some parts of this reserve were harvested in the early 1900s. Prior to 1988, intensive coffee/banana agriculture encroachment claimed large chunks of Mabira. Currently, 21% and 26% of the reserve have been designated as strict Nature Reserve and Buffer Zone.

## Methods

Bird surveys were performed in accordance with previous work<sup>2</sup> and were conducted by playing the recorded calls of Nahan's Francolin, using tapes previously made in Budongo by I Owunji and A Plumtre and soliciting responses through counter-calling and/or calling them out. In the study areas, existing trails served as transect lines. Along each trail system, calling stations were established at 200 m intervals and calls played for 2–3 mins. Replays were made at least five times at each station while adjusting the volume alternately from high to low and vice versa. Five minutes were spent at each site waiting for counter-calling. If a response was elicited, we tried to attract the birds by playing the tape continuously for 2–5 mins to bring them into view. Individuals within each group attracted to playbacks were counted whenever possible and their location was recorded. Different forest types subject to varying levels of disturbance were surveyed in each forest study area.

In addition, we interviewed 30 different households or individuals living in the village enclaves in



Figure 1. Map of the study areas

Mabira Forest and its edges to discover whether they were familiar with or hunted the species.

## Results

### Distribution at different forest sites

Nahan's Francolin occurred principally in mixed forest subject to moderate logging and/or disturbance, or where natural gaps occurred (Table 1 and Fig 2). Extreme situations or conditions appear to be unfavourable for the species and it was not recorded at forest edge and plantation sites. Although significant effort was made in playback studies in the different forest types with a different management history in Kibale we were unable to elicit any responses there.

In Bugoma, more responses were recorded in the previously logged and actively logged sites. Unlike the other two forests, Mabira is a mosaic of disturbed and undisturbed forests interspersed by village enclaves. Most positive responses came from encroached sites (Table 2). Swamp forests were limited in range but those sites visited held the species.

### Responses from local communities

Results (see Fig 3) demonstrate that most people know Nahan's Francolin and it is valuable for nutritional purposes. Many people reported that the bird provides good eating, it being described as more delicious than local domestic chicken. The eggs are collected and eaten, or used in traditional practices (eg witchcraft evoking evil spirits). The species is also seen as a bad omen: some people reported that if the species was seen in the village compound it presaged



**Table 1.** Summary of the number of calling stations at each site, positive responses and group sizes during phase 1 surveys.

Forest	Site	No. of Calling stations	No. of Positive response	No. in group
Bugoma	Nkwaki mixed forest (logged: previously and actively)	54	10	2,2,2
	Mwera (mature forest, near field station)	34	6	3
	Kyangwali (proposed nature reserve)	60	5	-
Total		148	21	
Mabira (phase 1)	Ndagala	56	9	1,3,
	Mbugwe	4	0	
	Nsaga	20	1	
	Namusa	56	5	2,2
	Site a	30	0	
	Site b	81	10	6
	Picnic site	5	0	
	Site c	7	0	
	Wanede	12	3	
	Ssese	10	0	
	Buwola	12	1	
Total		323	35	2
Kibale	K30-1	46	0	
	Census Road	42	0	
	K30-red	8	0	
	K30-blue	29	0	
	K30-2-3-4-5	85	0	
	Ngogo trail	21	0	
	Ngogo site	46	0	
Total		314	0	

bad luck, indicating that someone within the family would die soon; three pointed out graves of people who had died soon after a Nahan's Francolin had crossed their compound.

The results indicated that different people had different names for the species: Kakojo, Ekofu and Nonasubi. All 17 respondents who described the bird correctly reported that it prefers riverine or swampy areas in tropical rainforest, and the majority indicated that the species does not leave the forest interior, unlike guinea fowl *Numida* spp, which enter agricultural fields.

### Miscellaneous

This survey covered three forest areas. Calls (either voluntary or in response to playback) were recorded only in Bugoma and Mabira forests. More positive responses were recorded in Bugoma, relative to the number of calling stations used. This may be due to the fact that Mabira forest is highly degraded. Ninety-nine percent of all positive responses came from mature forests, either in valley bottoms, swamp forests, or forest gaps with dense undergrowth. The species does not inhabit cultivated areas at forest edges, which are common around Mabira forest. Indi-

**Table 2.** Sites in Mabira visited during phase 2 and the maximum number of groups responding to playback.

Site	No. of visits	Est. distance covered	Max. no. of groups/visit	Habitat type
Namaganda	7	8 km	4	Mature primary forest
Namusa	6	7 km	6	Mature primary forest
Ndagala	6	6 km	7	Encroached forest
Buvunya	4	4 km	1	Forest-edge
Buwola	3	4 km	3	Encroached forest
Nsaga	4	4 km	2	Encroached forest
Trail a	5	7 km	2	Mature primary forest

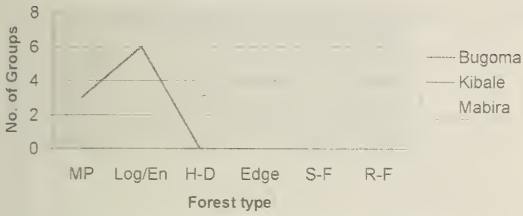


Figure 2. The maximum number of groups recorded in each forest type in each forest reserve.



Figure 3. The relative values of Nahan's Francolin to local people in Mabira forest. A=all respondents; B=those giving a description of the species. Total=17.

vidual group size is relatively small, being 1–5 birds. Pairs were commonly encountered, but it is unclear if the species is monogamous.

The species is able to tolerate moderate disturbance, but intense degradation leads to its disappearance. Similarly, swamps with dryer banks are favoured over very swampy areas. Nahan's Francolin could be used as a key indicator species in tropical forest ecosystem management and monitoring.

From our main study in Budongo we expect to discover more of the ecology of Nahan's Francolin but preliminary results indicate that it is relatively wide ranging (over 13 ha, ES pers obs) and is reported to feed on a variety of foods including bulbs, insects, invertebrates, seeds of *Trema orientalis* and *Measopsis eminii* (A Cawley pers comm). All of our breeding records have come from unlogged primary forest, in large trees with huge buttress roots and cavities resulting from natural ageing. These issues may have wider conservation implications for the species.

### Conservation implications

Nahan's Francolin faces a substantial level of threat. As forest fragments are highly threatened ecosystems throughout tropical Africa (through logging, human encroachment and fragmentation) there is a need for long-term conservation action. In addition to habitat threats, the species appears to be hunted throughout

its range. This threat appears to be substantial and requires further investigation. Spatial and temporal levels of hunting activity require assessment. This survey revealed that they are hunted and used for a variety of purposes—decoration, because of their purportedly beautiful feathers (A. Cawley pers comm), and food etc.

### Future activities

More information concerning the species' ecology is being collected in Budongo forest. Blood samples are being collected for future analysis, in order to better understand the natural history and taxonomy of this little-known bird. Additional fieldwork in Kibale and Semuliki forests is required to substantiate earlier findings.

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